

J. Thomas Brenna  
Curriculum Vitae and Publication List

April 2007

Educational and Professional

- 2000-present *Professor*, Division of Nutritional Sciences, Cornell University, Ithaca, New York, USA. 1989-1995 Assistant Professor; 1995-2000 Associate Professor.
- 2001-present *Director of Undergraduate Studies*, Div of Nutritional Sci, Cornell University, Ithaca, New York, USA.
- 2006-present *Adjunct Professor*, Depts of Community and Preventative Medicine and of Biochemistry and Biophysics, University of Rochester School of Medicine, Rochester, New York.
- 1985-1989 *Staff Scientist*, Advanced Technology Development Laboratory, IBM Corporation, Endicott, NY. Director of the Fourier Transform Mass Spectrometry Laboratory.
- 1988-1989 *Adjunct Assistant Professor*, Dept. of Chemistry, Binghamton University, New York.
- 1985/1982 *PhD/MS Chemistry*, Cornell University, Ithaca, NY. Thesis advisor: G. H. Morrison.
- 1980 *BS cum laude, Nutritional Biochemistry*, University of Connecticut, Storrs. Undergrad. Research Technician, Lipids Lab (with R. G. Jensen), Dept. of Nutr. Sci., UConn (1978-80).

Professional Experience and Service

**Highlight Summary:** Principal Investigator, National Institutes of Health (NIH): Nat Inst Gen Med Sci (R01 GM49209, 1992-2006, renewed twice); Nat Eye Inst (R01 EY10208, 1994-2003, renewed once); NIGMS (R01 GM71534-01, 2004-2008); Nat Inst Child Health Hum Dev (R03 current); numerous industry/private grants. Our research laboratory averages 10-15 fulltime members and is focused on n-3 fatty acid and metabolism in neural tissue, and on development of high precision isotopic, molecular, and elemental mass spectrometry for biomedical applications.

Author/co-author of >100 peer-reviewed publications; 1 U.S. patent and several pending. >100 invited presentations

Member, Cornell Graduate Faculties of *Nutritional Sciences*, of *Chemistry & Chemical Biology*, of *Food Science and Technology*, and of *Geological Sciences*.

Scientific Service

- Review Service (selected):
  - 2001-2007 NIH-Biological Chemistry and Macromolecular Biophysics Integrated Review Group.
  - 2006, 2004 NSF Major Research Instrumentation, Chemistry Division.
  - 2005, 2002 Louisiana Board of Regents Instrumentation Review Panel
  - 2004 NIH Metabolomics Special Emphasis Panel (SEP) Director's Roadmap Initiative
  - 2004 NIH-NCI Innovative Technologies for the Molecular Analysis of Cancer SEP
  - 2004 Wellcome Trust (UK) Reviewer
  - 1999 NSF Biological instrumentation
  - 1997 NIH Intramural Review
- 2001-2009 Member, Board of Directors, *International Society for the Study of Fatty Acids & Lipids (ISSFAL)* (elected and re-elected)
- 1999-present Member, Advisory Counsel, *NIH Center for Biomedical Accelerator Mass Spectrometry*, Lawrence Livermore National Laboratory, Livermore, CA
- 2002-present Editorial Advisory Board, *Rapid Communications in Mass Spectrometry*
- 2000-2004 Member, Publications Committee, *American Society for Mass Spectrometry*
- *ad hoc* referee (selected): *Acc Chem Res*, *Ped Res*, *Am J Clin Nutr*, *J Clin Inv*, *Nature*, *FASEB J*, *J Appl Physiol*, *J Neurochem*, *Anal Chem*, *Phytochem*, *Anal Chim Acta*, *Eur J Clin Nutr*, *Int J Mass Spectrom and Ion Proc*, *J Agr Food Chem*, *J Chromatogr*, *J Mass Spectrom*, *J Nutr*, *J Lipid Res*, *JBC*, *Lipids*, *The Analyst*, *Cosmoch Geoch Acta*.

University/College/Department Service (selected) and Teaching

- Service
  - 2001-2004; 1994-1995 *Cornell Faculty Senate*
  - 2006-07; 1993-1995 *Three departmental faculty searches*
  - 1998-present *Cornell Varsity Softball, Faculty Advisor*
  - 2001-present *College of Human Ecology Educational Policy Committee; 2006/07 Chair*
  - 1993/1994; 1994/1995; 1997/1998 *Chair*, *Cornell Faculty Advisory Committee on Athletics and Physical Education*. Committee member elected at-large for term 1992-1995; appointed 1997-2000, 2007-2009.

- 1998/1999 *NCAA Cornell Review Steering Committee*
- 1994/1995 *Cornell Athletic Director Search Committee - Faculty representative*
- 1994/1995 *Dean of Faculty Committee on Faculty Governance*
- 1995/1996, *Chair* 1996/1997 & 1997/1998 *Col of Human Ecology Committee on Academic Status*
- 2000-2001 *Chair, Department Curriculum Committee*

- Teaching

- Undergraduate. 2000-present: *Research in Health and Nutrition*; 2000-present: *Undergraduate Honors program coordinator*; 1991-2001: *NS 332 Methods in Nutritional Science*
- Graduate. 1992-present: *NS 690/Chem 628 Isotopic and Trace Element Analysis*. 1988: Binghamton University Graduate Course: *Advanced Instrumental Surface Characterization*.

#### Consulting Activity (selected)

- 2001-2007 *Mead Johnson Nutritionals/Bristol-Myers Squibb, Evansville, IN*
- 2006-present *Kinemed, Inc, San Francisco, CA*
- 2004-2006 *Martek Biosciences, Inc, Columbia, MD*
- 2005 *Monsanto Corp., St Louis, MO; Bunge, Inc.*
- 2004-2005 *Agave Biosciences, Inc, Ithaca, NY*
- 1992-2000 *Oak Ridge National Laboratory, TN*
- 1997-1999 *PDZ Europa, Crewe, UK*
- 1997 *Chevron Petroleum Technology Corp, La Habra, CA*

#### Research Funding Awards as Principal Investigator (Total support as PI, 1990-2006, >\$11M total; active.)

- 2004-08 *Gas phase derivitization for lipidomic MS analysis, NIH-NIGMS (R01)*  
 2006-09 *Standardization and Methodology for Steroid Isotopic Analysis, United States Anti-Doping Agency (USADA)*  
 2002-07 *LCPUFA supplementation & CNS function, Mead Johnson & Co/Bristol-Myers Squibb, Evansville, IN.*  
 2006-07 *LCPUFA Status and Birth Outcome in India, NIH-National Inst Child Health & Hum Development (R03).*
- 2005-06 Safety and efficacy of single cell oils, Martek Biosciences, Columbia, MD.  
 1992-06 Precise isotope ratio chromatography and stable tracers, NIH-NIGMS (R01) (incl 2 competitive renewals).  
 1994-03 Dietary essential fatty acid accumulation in retina, *NIH-National Eye Institute* (R01) (including 1 competitive renewal).  
 2002-03 Conjugated linoleic acid metabolism in humans, *National Cattlemens Beef Association*.  
 1998-00 Metabolism of arachidonic acid provided as triglyceride or phospholipid, *Numico Research, Friedrichsdorf, Germany*.  
 1999-00 Tissue accretion of octacosaoctanoic acid in piglets, *Mead Johnson Nutritionals/BMS, Evansville, IN*.  
 1999-00 Matrix-assisted laser desorption/ionization mass spectrometer, *National Science Foundation*.  
 1995-99 High precision D/H CSIA. *Chevron Petroleum Technology Company*.  
 1999 High precision PSIA for short chain organic acids. *ARCO Research*.  
 1995-99 Natural abundance isotope center, *NSF & Mellon Foundation*.  
 1993-94 <sup>13</sup>C-tracers for environmental analysis, *Oak Ridge National Laboratory, Tennessee*.  
 1991-93 Novel determination of water isotopes, *American Chemical Society-Petroleum Research Fund*.  
 1990-92 Novel water isotope detection by mass spectrometry, *NIH-National Institute of Child Health & Human Dev (R03)*.

#### Society Memberships:

American Society for Mass Spectrometry, American Society for Nutrition, International Society for the Study of Fatty Acids and Lipids, Am Chem Soc, American Oil Chemists Society, International Union for Pure and Applied Chemistry, AAAS, AMC Rambler Club.

#### Biographical

Born: New York, New York, 15 October 1959.  
 Spouse: Patricia Borbas Brenna  
 Children(4): Christopher Michael(23y); Daniel Joseph (15y); Margaret Elizabeth (15y); Anne Josephine(11y).  
 Residence: 32 Deervhaven Dr., Ithaca, New York 14850; (607) 277-7371  
 University: Savage Hall (B38), Cornell University, Ithaca, New York 14853; (607) 255-9182; FAX: (607) 255-1033;  
 <jtb4@cornell.edu>

Peer Reviewed Journal Articles/Book Chapters

Docosahexaenoic and Arachidonic Acid Concentrations in Human Breast Milks Worldwide, J. Thomas Brenna, Behzad Varamini, Robert G. Jensen, Deborah A. Diersen-Schade, Linda Arterburn, *Am J Clin Nutr*, *in press*, 2007.

The Influence Of Moderate And High Dietary Levels Of Long Chain Polyunsaturated Fatty Acid (LCPUFA) On Baboon Neonate Tissue Fatty Acids, Andrea T. Hsieh, Joshua C. Anthony, Deborah A. Diersen-Schade, Steven C. Rumsey, Cun Li, Peter W. Nathanielsz, J. Thomas Brenna, *Pediatric Research*, *in press*, 2007.

Comprehensive Differential Transcriptome Analysis of Cerebral Cortex of Baboon Neonates Consuming Arachidonic Acid and Moderate and High Docosahexaenoic Acid Formulas, Kumar S.D. Kothapalli, Joshua C. Anthony, Andrea Hsieh, Peter W. Nathanielsz, J. Thomas Brenna, *PLoS ONE*, *in press*, 2007.

Atmospheric Pressure Covalent Adduct Chemical Ionization (APCaci) Tandem Mass Spectrometry for Double Bond Localization in Monoene and Diene-containing Triacylglycerols, Yichuan Xu and J. Thomas Brenna, *Analytical Chemistry*, **79(6)** 2525-2536, 2007.

Dietary fat intakes for pregnant and lactating women, Berthold Koletzko, Irene Cetin, J. Thomas Brenna, for the Perinatal Lipid Intake Working Group, *British Journal of Nutrition*, *submitted*, 2007.

Fast Gas Chromatography/Combustion Isotope Ratio Mass Spectrometry, Gavin L. Sacks, Ying Zhang and J. Thomas Brenna, *Analytical Chemistry*, *submitted*, 2007.

The Intramolecular  $\delta^{15}\text{N}$  of Lysine Responds to Respiratory Status in *Paracoccus denitrificans*, Bruce S. Pan, Christopher J. Wolyniak, and J. Thomas Brenna, *Amino Acids*, *in press*, 2007.

Data Analysis in GCC-IRMS, J. T. Brenna, Gavin L. Sacks, Ying Zhang, Margaret E. Brenna, Proceedings of the 24<sup>th</sup> Manfred Donike Workshop on Dope Analysis (Cologne, Germany), 2007.

Formula Docosahexaenoic Acid And Arachidonic Acid Improves Postnatal Hemoglobin And Related Indices In Term Baboon Neonates, Andrea T. Hsieh, Joshua C. Anthony, Deborah A. Diersen-Schade, Peter W. Nathanielsz, and J. Thomas Brenna, *BMC Pediatrics*, *submitted*, 2007.

Biochemical and white blood cell profiles of baboon neonates consuming formulas with moderate and high dietary long-chain polyunsaturated fatty acids, Andrea T. Hsieh, J. C. Anthony, D. A. Diersen-Schade, P. W. Nathanielsz, J. T. Brenna, *J Medical Primatology*, *submitted*, 2007.

Neonatal Piglet Tissue Compositional Dose Response to Dietary Docosahexaenoic And Arachidonic Acids, Meng-Chuan Huang, Angela Chueh Chao, Carolyn Tschanz, J.M. Peralta, Hsin-Chia Hung, D.A. Diersen-Schade and J. Thomas Brenna, *J Nutrition*, *submitted*, 2007.

Baboon FASD1 complete coding sequence, K.S.D. Kothapalli, T. Li, W. Park, J.T.Brenna. Genbank, 2007.

A Computational Study of Structure and Dissociation of Key Ions Observed During Acetonitrile Covalent Adduct Chemical Ionization Mass Spectrometry of Conjugated Methyl Linoleate, Denise K. Pauler, Daniel Montiel, Anthony L. Michaud, J. Thomas Brenna, Barry K. Carpenter, *in preparation*, 2007.

Acetonitrile Covalent Adduct Chemical Ionization (CACI) Mass Spectrometry for Double Bond Localization in Non-Methylene-Interrupted Polyene Fatty Acid Methyl Esters. Peter Lawrence, J. T. Brenna, *Analytical Chemistry* **78(4)**: 1312-7, 2006.

Effects of conjugated linoleic acid on linoleic and linolenic acid metabolism in man. A.M Turpeinen, S. Barlund, R. Freese, P. Lawrence, J. T. Brenna, *British Journal of Nutrition* **95(4)** 727-733, 2006.

Determination of Intramolecular  $\delta^{13}\text{C}$  From Incomplete Pyrolysis Fragments. Evaluation of Pyrolysis-Induced Isotopic Fractionation in Fragments from the Lactic Acid Analogue Propylene Glycol. Christopher J. Wolyniak, Gavin L. Sacks, Sara K. Metzger, J. Thomas Brenna, *Analytical Chemistry* **78(8)** 2752-2757, 2006.

Acetyl CoA Carboxylase Shares Metabolic Control of De Novo Fatty Acid Synthesis with Fatty Acid Synthase in Bovine Mammary Homogenate, T. C. Wright, J. P. Cant, J. T. Brenna, and B. W. McBride, *Journal of Dairy Science* **89(7)** 2552-2558, 2006.

[Book edited]: Lipids Analysis and Lipidomics: New Techniques and Applications, M.M. Mossoba, J.K.G. Kramer, J.T. Brenna, R.E. McDonald, Editors. ISBN 978-1-893997-85-1; AOCS Press, Champaign, IL, 2006.

Structural Analysis of Unsaturated Fatty Acid Methyl Ester Isomers with Acetonitrile Covalent-Adduct Chemical Ionization (CACI) Tandem Mass Spectrometry, J. Thomas Brenna, Chapter 6, pp. 157-172 in: *New Techniques and Applications in Lipid Analysis and Lipidomics*, M.M. Mossoba, J.K.G. Kramer, J.T. Brenna, R.E. McDonald, Eds., AOCS Press, 2006.

Elemental Speciation by Parallel Elemental and Molecular Mass Spectrometry (PEMMS) and Peak Profile Matching, Gavin L. Sacks, Louis A. Derry and J. Thomas Brenna, *Analytical Chemistry*, **78(24)** 8445-55, 2006.

[Textbook chapter] Lipid structure, nomenclature, and chemical properties, J. T. Brenna and G. L. Sacks. Chapter 6 in *Nutritional Biochemistry*, 2<sup>nd</sup> Edition, M. H. Stipanuk, Editor, 2006.

K.S.D. Kothapalli, J. C. Anthony, J.T. Brenna, GenBank listings for baboon (*Papio anubis*) nucleotide sequences: DQ779570 (*Lumican*); DQ779571 (*TIMM8A*); DQ779572 (*Uncoupling protein 2*); DQ779573 (*Beta-Actin*); DQ779574 (*ADAM metalloproteinase domain 17*); DQ779575 (*ATPase class I type 8B member 1*); DQ779576 (*TOB1*); DQ779577 (*Stearoyl-CoA desaturase, SCD1*); DQ779578 (*Fatty acid desaturase 1, FADS1*), posted August 2006. Submitted, DQ812089 (*FADS2*); DQ812090 (*FADS3*).

Omega-3 Fatty Acids, Energy Substrates, And Brain Function During Aging, Erika Freemantle, Milène Vandal, Jennifer Tremblay-Mercier, Sébastien Tremblay, Jean-Christophe Blachère, Michel E. Bégin, J. Thomas Brenna, Anthony Windust, Stephen C. Cunnane, *Prostaglandins, Leukotrienes, and Essential Fatty Acids*, Sep;75(3):213-20, 2006.

Structural Characterization of CLA Methyl Esters with Acetonitrile Chemical Ionization Tandem Mass Spectrometry, Anthony L. Michaud, and J. Thomas Brenna, *Advances in Conjugated Linoleic Acid Research, Vol. 3*, 2006.

<sup>15</sup>N/<sup>14</sup>N Position-Specific Isotopic Analyses of Polynitrogenous Amino Acids. Gavin L. Sacks and J. Thomas Brenna, *Analytical Chemistry* 77(4):1013-1019, 2005.

The influence of long chain polyunsaturate supplementation on docosahexaenoic acid and arachidonic acid in baboon neonate central nervous system. Guan-Yeu Diau, Andrea T. Hsieh, Eszter A. Sarkadi-Nagy, Vasuki Wijendran, Peter W. Nathanielsz, and J. Thomas Brenna, *BMC Medicine* 3:11, 2005.

Carbon position-specific isotope analysis of alanine and phenylalanine analogues exhibiting nonideal pyrolytic fragmentation. Christopher J. Wolyniak, Gavin L. Sacks, Bruce S. Pan, J. T. Brenna. *Analytical Chemistry* 2005;77(6):1746-52

On The Formation of Conjugated Linoleic Acid Diagnostic Ions With Acetonitrile Chemical Ionization Tandem Mass Spectrometry, Anthony L. Michaud, Peter Lawrence, Richard Adlof, J. Thomas Brenna, *Rapid Communications in Mass Spectrometry*, 19(3):363-368, 2005.

Gas Chromatography-Chemical Ionization-Mass Spectrometric Fatty Acid Analysis of a Commercial Supercritical Carbon Dioxide Lipid Extract from New Zealand Green Lipped Mussel (*Perna canaliculus*), Christopher J. Wolyniak, Thomas Brenna, Karen J. Murphy, Andrew J. Sinclair, *Lipids*, 40(4):355-360, 2005.

Milk Fat Synthesis is Unaffected by Abomasal Infusion of the Conjugated Diene 18:3 Isomers *cis*-6, *trans*-8, *cis*-12 and *cis*-6, *trans*-10, *cis*-12. A. Sæbø, J. W. Perfield II, P. Delmonte, M. P. Yurawecz, P. Lawrence, J. T. Brenna, and D. E. Bauman, *Lipids*, 40(1):89-95, 2005.

On The Perinatal Biosynthesis Of The Omega-3 Long Chain Polyunsaturated Fatty Acid (LCPUFA) Docosahexaenoic Acid (DHA). J. T. Brenna, *Pediatric Perspectives* 4(6); published by Mead-Johnson Nutritionals, Evansville, IN, 2005.

Formula Feeding Potentiates Docosahexaenoic and Arachidonic Acid Biosynthesis in Preterm and Term Four-week Adjusted Age Baboons, Eszter Sarkadi-Nagy, Vasuki Wijendran, Guan-Yeu Diau, Angela Chao, Andrea T. Hsieh, Anu Turpeinen, Peter Lawrence, Peter W. Nathanielsz, J. Thomas Brenna, *J Lipid Res*, 45(1):71-80, 2004.

Identification and Characterization of Conjugated Fatty Acid Methyl Esters of Mixed Double Bond Geometry by Acetonitrile Chemical Ionization Tandem Mass Spectrometry. Anthony L. Michaud, Martin P. Yurawecz, Pierluigi Delmonte, Benjamin A. Corl, Dale E. Bauman, J. Thomas Brenna, *Analytical Chemistry* 75:4925-4930, 2003.

*Invited*: Sourcing Organic Compounds Based On Natural Isotopic Variations Measured By High Precision Isotope Ratio Mass Spectrometry. Sven Asche, A. L. Michaud, J. T. Brenna. *Current Organic Chemistry*, 2003, 7(15) 1527-1543.

The Influence of Prematurity and Long Chain Polyunsaturate Supplementation in Four-Week Adjusted Age Baboon Neonate Brain and Related Tissues. Eszter Sarkadi-Nagy, Vasuki Wijendran, Guan Yeu Diau, Angela Chueh Chao, Andrea T. Hsieh, Anu Turpeinen, Peter W. Nathanielsz, J. Thomas Brenna. *Pediatric Research* 54: 244-252, 2003.

Docosahexaenoic and Arachidonic Acid Influence on Preterm Baboon Retinal Composition and Function, Guan-Yeu Diau, Ellis R. Loew, Vasuki Wijendran, Eszter Sarkadi-Nagy, Peter W. Nathanielsz, J. Thomas Brenna, *Investigative Ophthalmology Vision Research*, 2003, 44(10) 4559-4566.

High precision position-specific isotope analysis of <sup>13</sup>C/<sup>12</sup>C in Leucine and Methionine Analogues. Gavin L. Sacks and J. T. Brenna, *Analytical Chemistry*, 2003 75:5495-5503.

Influence of Dietary Long Chain Polyunsaturated Fatty Acids on Premature Baboon Lung Fatty Acid Composition. Angela Chueh Chao, Guan-Yeu Diau, Vasuki Wijendran, Eszter Sarkadi-Nagy, Andrea T. Hsieh, Peter W. Nathanielsz, J. Thomas Brenna, *Lipids*, 38(4): 425-429, 2003.

Vitamin E Supplementation Blocks Lipid Peroxidation With Increasing Long Chain Polyunsaturate Levels In Piglet Tissues. E. Sarkadi-Nagy, M.-C. Huang, G.-Y. Diau, R. Kirwan, A. C. Chao, C. L. Tschanz, J. T. Brenna. *European Journal of Nutrition*, 42: 293-296, 2003.

An Analysis of Quantization Error in High Precision Continuous Flow Isotope Ratio Mass Spectrometry (IRMS), Gavin L. Sacks, Christopher J. Wolyniak, and J. Thomas Brenna, *J Chromat A*, 2003 1020(2):273-82.

Efficacy of Dietary Arachidonic Acid Provided As Efficacy Of Dietary Arachidonic Acid Provided As Triglyceride Or Phospholipid As Substrates For Brain Arachidonic Acid Accretion In Baboon Neonates. Vasuki Wijendran, Meng-Chuan

- Huang, Guan-Yeu Diau, Gunther Boehm, Peter W. Nathanielsz, J. Thomas Brenna, *Pediatric Research* 51(3) 265-272, 2002. [Commentary by S. C. Cunnane, *Pediatric Research* 51(3) 263-264, 2002.]
- Enzymatic Decarboxylation For Preparation Of Amino Acids For Isotopic Analysis. Bassem Ziadeh, Anthony Michaud, Nabil Saad, Betty Lewis, Paul Pencharz, M. Rafii, J. Thomas Brenna. *Analytical Chemistry*, 74(2):479-83, 2002.
- Efficiency of Conversion of  $\alpha$ -Linolenic Acid to Long Chain n-3 Fatty Acids in Man. J. T. Brenna, *Current Opinion in Clinical Nutrition and Metabolic Care* 5(2):127-132, 2002.
- Straight-chain Acyl-CoA Oxidase Knockout Mouse Accumulates Extremely-Long-Chain Fatty Acids From  $\alpha$ -Linolenic Acid: Evidence for Runaway Carousel-type Enzyme Kinetics in Peroxisomal  $\beta$ -Oxidation Diseases. Juan P. Infante, Carolyn L. Tschanz, Natacha Shaw, Anthony L. Michaud, Peter Lawrence, and J. Thomas Brenna, *Molecular Genetics and Metabolism* 75(2):108-119, 2002.
- Dietary Single Cell Long Chain Polyunsaturated Oils at Physiological Levels Do not Alter Serum Clinical Indicators or Organ Weights in Piglets Fed from Birth to One Month. Meng-Chuan Huang, Angela Chao, Ryan Kirwan, Carolyn Tschanz, Jose M. Peralta, Deborah A. Diersen-Schade, Susan Cha, and J. Thomas Brenna, *Food Chemical Toxicology* 40(4), 453-460, 2002.
- Significant Utilization of Dietary Arachidonic Acid is For Brain Adrenic Acid In Baboon Neonates, Vasuki Wijendran, Peter Lawrence, Guan-Yeu Diau, G. Boehm, P. W. Nathanielsz, and J.T.Brenna. *J Lipid Research*, 43(5), 762-7, 2002.
- Double Bond Localization in Minor Homoallylic Fatty Acid Methyl Esters Using Acetonitrile Chemical Ionization Tandem Mass Spectrometry, Anthony L. Michaud, Guan-Yeu Diau, Ruben Avril, J. Thomas Brenna, *Analytical Biochemistry*, 307(2), 348-360, 2002 (doi: 10.1016/S0003-2697(02)00037-4).
- BOOK: *Measuring Mass. From Positive Rays to Proteins*. Michael A. Grayson, Editor. Contributors (in alphabetical order): J. Thomas Brenna, Kenneth L. Busch, Richard M. Caprioli, Robert J. Cotter, Ronald D. Grigby, Charles M. Judson, Ragu Ramanathan, Gary Siuzdak, Michael S. Story, John J. Thomas, Ross C. Willoughby, Alfred L. Yergey. Sponsored by the American Society for Mass Spectrometry on the occasion of the 50<sup>th</sup> ASMS Conference, and distributed to all 4800 attendees. Published by Chemical Heritage Press, Philadelphia, 2002.
- Natural Intramolecular Isotope Measurements in Physiology. Elements of the Case for an Effort Toward High Precision Position-Specific Isotope Analysis (PSIA) J. T. Brenna, *Rapid Comm in Mass Spectrometry*, 15(15):1252-62, 2001.
- Reduction of Non-Polar Amino Acids to Amino Alcohols to Enhance Volatility For High Precision Isotopic Analysis, Bassem I. Zaideh, Nabil M. R. Saad, Betty A. Lewis, and J. Thomas Brenna, *Analytical Chemistry*, 73(4):799-802, 2001.
- Fetal Baboons Convert 18:3n-3 to 22:6n-3 in vivo. A Stable Isotope Tracer Study. Hui-Min Su, Meng-Chuan Huang, Nabil M. R. Saad, Peter W. Nathanielsz, and J. Thomas Brenna, *J. Lipid Research*, 42(4):581-6, 2001.
- Growth, Neurobehavioral And Circadian Rhythm Development In Newborn Baboons. Majid Mirmiran, Luca Bernardo, Susan L. Jenkins, Xiao Hong Ma, J. Thomas Brenna, Peter W. Nathanielsz, *Pediatric Research*, 49(5):673-7, 2001.
- High Levels of Docosahexaenoic Acid (22:6n-3)-containing Phospholipids in High-Frequency Contraction Muscles of Hummingbirds and Rattlesnakes. J. P. Infante, R. C. Kirwan, J. T. Brenna, *Comparative Biochemistry and Physiology B: Biochemistry and Molecular Biology* 130(3):291-8, 2001.
- On The Relative Efficacy of  $\alpha$ -Linolenic acid and Preformed Docosahexaenoic Acid as Substrates for Tissue Docosahexaenoate During Perinatal Development, Meng-Chuan Huang and J. T. Brenna, Chapter 7, in *Fatty Acids: From Neuronal Membrane to Physiological and Behavioral Function*, ed by D. I. Mostofsky, S. Yehuda, N. Salem, Jr., pp. 99-114, 2001.
- High Precision Isotope Ratio Mass Spectrometry and Stable Isotope Precursors for Tracer Studies in Cell Culture, Meng-Chuan Huang, Sri Muddana, Eric N. Horowitz, Charles C. McCormick, Juan P. Infante and J. Thomas Brenna, *Analytical Biochemistry*, 2000, 287: 80-86.
- Breast-fed Infants Achieve A Higher Rate Of Brain And Whole Body Docosahexaenoate Accumulation Than Formula-Fed Infants Not Consuming Dietary Docosahexaenoate, Stephen C. Cunnane, Valerie Francescutti, J. Thomas Brenna, Michael A. Crawford. *Lipids* 2000, 35:105-111.
- The formula-fed infant not consuming docosahexaenoate does not accumulate docosahexaenoate at the same rate as the breast-fed infant. Cunnane SC, Francescutti V, Brenna JT, Crawford MA *Proceedings Of The Nutrition Society* 59: 38A-38A, Suppl. S SPR 2000
- Maternal intravenous administration of long chain n-3 polyunsaturates to the pregnant ewe in late gestation results in specific inhibition of prostaglandin H synthase (PGHS) 2, but not PGHS1 and oxytocin receptor mRNA in myometrium during betamethasone-induced labor. Xiao Hong Ma, Wen Xuan Wu, J. Thomas Brenna, P. W. Nathanielsz, *Journal of the Society for Gynecological Investigation*, 2000,7(4):233-237.
- An Octaene Fatty Acid, 4,7,10,13,16,19,22,25-Octacosaoctaenoic Acid (C28:8n-3), Found in Marine Oils. C. Van Pelt, M.-C. Huang, C. Tschanz, J. T. Brenna, *Journal of Lipid Research*, 1999, 40(8)1501-1505 .

Studies of Structure and Mechanism in Acetonitrile Chemical Ionization Tandem Mass Spectrometry of Polyunsaturated Fatty Acid Methyl Esters. Colleen K. Van Pelt, Barry K. Carpenter, and J. Thomas Brenna, *Journal of the American Society for Mass Spectrometry* 1999, 10: 1253-1262.

Bioequivalence of dietary  $\alpha$ -linolenic and docosahexaenoic acids as sources of docosahexaenoate accretion in brain and associated organs of neonatal baboons. by Hui-Min Su, Luca Bernardo, Majid Mirmiran, X. H. Ma, T. N. Corso, P. W. Nathanielsz and J. T. Brenna, *Pediatric Research*, 1999, 45:87-93.

Invited: Online Pyrolysis of Hydrocarbons Coupled to High-Precision Carbon Isotope Ratio Analysis, T. N. Corso and J. T. Brenna, *Analytica Chimica Acta*, 1999, 397: 217-224.

Acetonitrile Chemical Ionization Tandem Mass Spectrometry (CI-MS/MS) To Locate Double Bonds in Polyunsaturated Fatty Acid Methyl Esters, C. K. Van Pelt and J. T. Brenna, *Analytical Chemistry*, 1999, 71: 1981-1989.

Delay or Prevention of Premature Delivery in Sheep by Omega-3 Long Chain Polyunsaturates, M. Baguma-Nibasheka, J. T. Brenna, P. W. Nathanielsz, *Biology of Reproduction* 1999, 60: 698-701.

Dietary 18:3n-3 And 22:6n-3 As Sources Of 22:6n-3 Accretion In Neonatal Baboon Brain And Associated Organs H.-M.Su, L. Bernardo, M. Mirmiran, X.-H. Ma, P. W. Nathanielsz & J. T. Brenna, *Lipids*, 1999, 34:S347-50.

Carbon Recycling into de novo Lipogenesis is a Major Pathway in Neonatal Metabolism of Polyunsaturates, S. C. Cunnane, C. R. Menard, S. S. Likhodii, J. T. Brenna, M. A. Crawford, *Prostaglandins, Leukotrienes, and Essential Fatty Acids*, 1999, 60: (5-6) 387-392.

Linoleic Acid Kinetics and Conversion to Arachidonic Acid in the Pregnant and Fetal Baboon, H.-M. Su, T. N. Corso, P. W. Nathanielsz, J. T. Brenna, *Journal of Lipid Research*, 1999, 40(7):1304-12 .

Docosahexaenoate Requirement and Infant Development. Stephen C. Cunnane, Valerie Francescutti, J. Thomas Brenna, *Nutrition* 1999, 15: 801-802. (Letter to the editor)

Gas Chromatograph Injection Liner for Continuous Analyte Admission Into a Mass Spectrometer T. N. Corso, C. K. Van Pelt, J. T. Brenna, *Analytical Chemistry* 1998, 70, 1030-1032.

Simultaneous Measurement of Desaturase Activities Using Stable Isotope Tracers or a Non-Tracer Method, H.-M. Su and J. T. Brenna, *Analytical Biochemistry* 1998, 261(1): 43-50.

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### Selected Invited Lectures (of >100)

Neuroscience: Nutritional factors in neurogenesis and the relative importance of different types of essential fatty acids. IN: Neuroscience, epigenetics, maternal nutrition, HIV and its origin in Africa. A Letten and Mother and Child Foundation Symposium. London, Oct 2006.

[Plenary Lecture] The influence of perinatal long chain polyunsaturate nutrition and prematurity on neural tissue polyunsaturate composition and function studied in non-human primates, J. Thomas Brenna, 47<sup>th</sup> International Congress on the Bioscience of Lipids, Pecs, Hungary, Sept 2006.

DHA Synthesis from ALA: Relevance for Public Health Advice, Symposium/panel on Communicating Recommendations on Omega-3 Fatty Acids to dieticians and the public, Experimental Biology 2005, San Diego.

Double Bond Localization in Conjugated Polyunsaturated FAME by Ion-Molecule Reaction MS/MS, Am Oil Chemists Soc, Salt Lake City, June 2005.

Analysis of trans and Conjugated Fatty Acids by Gas Phase Derivatization and Tandem Mass Spectrometry, Am Oil Chem Soc, Salt Lake City, June 05

Omega-3 Fatty Acids: Health Effects from the Cradle to the Grave. Cornell Institute of Food Science, International Symposium on Functional Foods, , Ithaca, June 05.

Are Docosahexaenoic and/or Arachidonic Acid Required for Optimal Perinatal Neural Development? Evidence from Compositional and Stable Isotope Tracer Studies in Non-Human Primates. Case Western Reserve Univ, Dept of Nutrition, Oct 05.

CNS composition responds differently to dietary DHA and AA (ARA) in non-human primates. 4th International Conference in Cellular and Molecular Biology, Poitiers, France, Oct 05.

The influence of dietary docosahexaenoic acid (DHA) and arachidonic acid (ARA) on neural tissue composition and metabolism. Stable isotope tracer and compositional studies in neonates. University of Umea, Sweden, Oct 05.

Is a Dietary Source of Docosahexaenoic Acid and/or Arachidonic Acid Required for Perinatal Neural and Visual Development? Pediatrics Grand Rounds, University of Texas Health Science Center San Antonio, 2004.

Polyunsaturated Fatty Acid Nutrition for Neural Development in Neonatal Baboons, Southwest Foundation for Biomedical Research, San Antonio, Texas, 2004.

Pregnant and Lactating Women Should Consume a Source of Dietary Docosahexaenoic Acid. Ob/Gyn Grand Rounds, University of Texas Health Science Center San Antonio, 2004.

Compositional and Functional Consequences of Docosahexaenoic Acid Supplementation in Retina and CNS of Neonatal Baboons, J. T. Brenna, American Society for Neuroscience Annual Conference, New York, NY, 2004.

Effects of Chromatographic Overlap on Uncertainty, J. T. Brenna, Second Annual Workshop of the United States Antidoping Agency, City of Industry, CA, 2003.

The Influence of Prematurity and Long Chain Polyunsaturate Supplementation on Docosahexaenoic and Arachidonic Aids in the Basal Ganglia in Baboon Neonates, Fifth Workshop on Fatty Acids and Cell Signaling, Bethesda, MD, July 2003.

Opening speaker, 50<sup>th</sup> ASMS Conference. Tutorial 1: Guidelines for Quantitative Analysis by Mass Spectrometry. Orlando, Florida, June 2002.

Plenary Lecture: Essential fatty acid requirements for the perinatal primate. Fifth International Conference of the International Society for the Study of Fatty Acids and Lipids, Montreal, Canada, May 2002.

Keynote Address: Stable Isotope Mass Spectrometry Users Group, SIMSUG 2001, Glasgow, UK, January, 2001.

Stable isotopes in nutrition research: Present status and ruminations about the future. J. T. Brenna, After dinner speaker sponsored by Washington University Mass Spectrometry Facility and Cambridge Isotope Laboratories. Event associated with Experimental Biology 2000, San Diego, CA.

High precision position-specific isotope analysis, Gordon Conference on Isotopes in Biological and Chemical Sciences, Ventura, CA, Jan 1998.

High precision position-specific isotope analysis, 6<sup>th</sup> International Symposium on The Synthesis and Applications of Isotopes and Isotopically Labeled Compounds, Philadelphia, PA, Sept 1997.

High precision continuous flow isotope ratio mass spectrometry, Dept of Chemistry, Univ of Vermont, Burlington, Oct 97.

High precision compound specific isotope analysis: Better late than never, Dept of Chemistry, University of Connecticut, Storrs, CT, Oct 1997.

High sensitivity tracer studies using precision isotope ratio mass spectrometry, Dept of Nutritional Sciences, Storrs, CT, Sept 1997.

Simultaneous desaturase assays using stable isotopes and high precision mass spectrometry, 4<sup>th</sup> International Conference on Essential Fatty Acids & Eicosanoids, Edinburgh, Scotland, July, 1997.

The influence of dietary linoleate on accretion of linolenate in the developing rat brain and retina, J. T. Brenna, H.-M. Su, L. A. Keswick, R. C. Sheaff, Proceedings, Annual Conference of the American Oil Chemists Society, May 1997, Seattle, WA.

Stable isotope studies of essential fatty acids in non-human primates, American Society for Nutritional Sciences Workshop, Experimental Biology, New Orleans, LA, April 1997.

Stable isotope tracer studies of essential fatty acid metabolism in the chronically catheterized perinatal non-human primate, I.N.S.A. de Lyon, Laboratoire de Biochimie et Pharmacologie de la médiation Lipidique, Lyon, France. November, 1996 (by invitation of Prof. Michel LaGarde).

The Use of Isotopes to Study Fatty Acid and Lipoprotein Metabolism, Lipids, Membranes, and Thrombosis, Maastricht, The Netherlands, July, 1996.

High Precision D/H Determinations from Organic Mixtures, J. T. Brenna, H. J. Tobias, Stable Isotopes and the Integration of Biological, Ecological, and Geochemical Processes, Newcastle, UK, July 1996.

High Precision Compound Specific D/H Ratios by Gas Chromatography-Combustion Isotope Ratio Mass Spectrometry (GCC-IRMS) J. T. Brenna, H. J. Tobias, International Isotope Society, 5th Annual Meeting of the Canadian Chapter, May 1996.

Highly Precise Isotope Ratio Chromatography-Combustion Isotope Ratio Mass Spectrometry for High Sensitivity Biotracer Studies, First Annual Bristol-Myers Squibb/Mead-Johnson Non-restricted Grants Symposium, Evansville, Indiana, June 1993.

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Spatially Resolved Organic Surface Analysis, J. T. Brenna, 40th Annual ASMS Conference on Mass Spectrometry and Allied Topics, Washington, D.C., June 1992. (Symposium Organizer)

Perlabeled Tracers and Gas Chromatography-Combustion Isotope Ratio Mass Spectrometry for High Sensitivity Metabolite Detection in Mammals, J. T. Brenna and K. J. Goodman, Featured Symposium, 39th Annual ASMS Conference on Mass Spectrometry and Allied Topics, Nashville, Tennessee, June, 1991.

Laser Microprobe Fourier Transform Ion Cyclotron Mass Spectrometry: Instrumentation and Results of Quantitative and Polymer Investigations, 4th International Laser Microprobe Mass Spectrometry Conference, Asheville, North Carolina, July, 1989.

Carbon Clustering Phenomena Due to Laser Ablation of Polymers Studied by Laser Microprobe Fourier Transform Ion Cyclotron Resonance Mass Spectrometry, Weekly Seminar Series, National Science Foundation Engineering Research

Center in Plasma-Aided Manufacturing and Dept. of Electrical and Computer Engineering, University of Wisconsin, Madison, Wisconsin, Feb, 1989.

Is There a Scientific Life in IBM Development Labs?, Department of Chemistry, Stanford University, December 1988.

Elemental and Molecular Localization, Opening speaker at workshop Secondary Organic Ion Imaging: Problems and Prospects, 37th Annual ASMS Conference on Mass Spectrometry and Allied Topics, San Francisco, California, June, 1988.

Laser Applications in Electronic Packaging, in Laser Applications in Chemistry, 3 day short course sponsored by Chemical Physics Group, Chemistry Dept, Cornell University, May, 1988.

Secondary Ion and Fourier Transform Mass Spectrometry, General Chemistry Colloquium, Chemistry Dept., Binghamton University, March, 1987.

#### General/Popular Press

“Canola has unique ratio of linoleic to alpha-linolenic acids”, Ask A Scientist, Ithaca Journal, March, 2007. Also, Binghamton Press and Sun-Bulletin.

The Times of India, quoted in article outlining new study on polyunsaturated fatty acids and birth outcome in India, 30 Jan 2007.

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“Administrative Arms Race”, Letter to the Editor of *The Scientist* (ISI, Philadelphia, PA), Sept 15, 1997 issue, p. 10.

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Book Review: *Handbook of Milk Composition*, Edited by R. G. Jensen. *Inform* 1996.

Interview: Quoted in *The Precise World of Isotope Ratio Mass Spectrometry* (by Alan Newman), *Analytical Chemistry* 1996, 68: 373A-377A.

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#### Conference Presentations/Abstracts/Extended Abstracts

Fast Gas Chromatography-Combustion Isotope Ratio Mass Spectrometry, J.T. Brenna, Ying Zhang, G.L. Sacks, 25<sup>th</sup> Manfred Donike Workshop on Dope Analysis, 2007.

Impact of Arachidonic Acid and Moderate and High Docosahexaenoic Acid Formulas on Hepatic Gene Expression Profiles in Baboon Neonates, Kumar S.D. Kothapalli, Joshua C. Anthony, Bruce S. Pan, Andrea T. Hsieh, Peter W. Nathanielsz, J. Thomas Brenna, European Society for Human Genetics, Nice, France, 2007.

Dietary Fat Intakes For Pregnant And Lactating Women, Koletzko Berthold, Cetin Irene, J. Thomas Brenna, for the PERILIP Group, International Congress of Pediatrics, Athens, 2007.

Consensus recommendations on dietary fat intake during pregnancy and lactation, Berthold Koletzko, Irene Cetin, J Thomas Brenna, for the PERILIP Group, International conference on Fetal Programming and Developmental Toxicity, Torshavn, Faroe Islands, May 2007.

Atmospheric Pressure Covalent Adduct Chemical Ionization Triple Stage Mass Spectrometry (APCACI-MS3) for Structural Elucidation of Triacylglycerols, J. Thomas Brenna, Yichuan Xu, 98<sup>th</sup> Annual Am Oil Chemists Meeting, Quebec City, QC, May 2007. [Invited]

Guinea DNA nitrogen and carbon isotope ratios are depleted relative to tissue and mildly responsive to physiological state, Maggie S. Strable, Behzad Varamini, Carolyn Tschanz, J. Thomas Brenna, Experimental Biology 2007, Washington, DC.

Comparative branched chain fatty acid concentrations in vernix and meconium of human infants, Rinat Ran-Ressler, Srisatish Devapatla, Peter Lawrence, and J. Thomas Brenna, Experimental Biology 2007, Washington, DC.

Guinea pig cerebellar histones but not DNA turns over in the first year of life, Behzad Varamini, Carolyn Tschanz, J. Thomas Brenna, Experimental Biology 2007, Washington, DC.

Quantitative analysis of extremely long chain fatty acids of bovine retina, Tara Kelly, Peter Lawrence, J. Thomas Brenna, Experimental Biology 2007, Washington, DC.

Consensus recommendations on dietary fat intake during pregnancy and lactation, Berthold Koletzko, Irene Cetin, J Thomas Brenna, for the PERILIP Group, Experimental Biology 2007, Washington, DC.

Identification of enriched conjugated linoleic acid isomers in cultures of ruminal microorganisms after dosing with 1-<sup>13</sup>C-linoleic acid. Y-J. Lee, J. T. Brenna, S. K. Duckett, G. L. Powell, W.C. Bridges, Jr., T. C. Jenkins; Clemson University, Cornell University, ADSA, San Antonio, Tx 20078

Molecular characterization of trace metals and metalloids in complex matrices by parallel elemental and molecular mass spectrometry (PEMMS)", Gavin L Sacks, Louis Derry, J Thomas Brenna, Northeast Regional Meeting of the American Chemical Society, Binghamton, NY, October, 2006. [Invited]

Determination of Intramolecular  $\delta^{13}\text{C}$  From Incomplete Pyrolysis Fragments. Evaluation of Pyrolysis-Induced Isotopic Fractionation in Fragments from the Lactic Acid Analogue Propylene Glycol, Christopher J. Wolyniak, Gavin L. Sacks, J. Thomas Brenna, Third International Workshop on Isotopomers, La Jolla, CA, Sept 2006.

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